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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,025	09/05/2003	Mark P. Goldenfield	ARF 2002-014	9046
7590 07/19/2005			EXAMINER	
Joseph C. Spadacene Westinghouse Electric Company LLC 4350 Northern Pike Monroeville, PA 15146			BEHREND, HARVEY E	
			ART UNIT	PAPER NUMBER
			3641	

DATE MAILED: 07/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/657,025

Applicant(s)

GOLDENFIELD ET AL.

Examiner

Harvey E. Behrend

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 5/10/05.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7, 9-12, 14, 15 is/are pending in the application.
- 4a) Of the above claim(s) 11, 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9, 10, 14, 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 5/10/05 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features of claims 1 and 15 (as to the relative size of the contact areas of the dimples and/or springs of the auxiliary support cells versus the main support cells), and claim 9, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Note the discussion of applicants arguments in section 1 of the 12/22/04 Office action, which are still pertinent here and are incorporated herein.

Applicants claims require the "second set of dimples and/or springs", to have a larger contact area than that of the "first set ...", and, the drawings must show this structural feature recited in the claims.

Applicants Fig. 7 does not show the overall contact area with the fuel rods as being larger than that of Fig. 5.

While applicants Fig. 6 shows vertical springs on the outer strap of the auxiliary grid, it does not show vertical springs on the inner straps (the inner strap only shows a horizontal dimple at the upper end of the cell wall).

It is immaterial as to whether Fig. 6 shows the outer strap of the auxiliary grid as having vertical springs because the claimed relative difference in contact area of the dimples and/or springs, is with the inner straps of the two different grids (e.g. see the specification on page 11 lines 29+).

The examiner does not dispute that patent drawings do not have to be drawn to scale, however, the drawings are required by the Rules to show every feature recited in the claims (this clearly includes the claimed relative difference in size of the contact area of the dimples and/or springs of the inner straps of the two different grids).

None of the drawing figures illustrate the actual contact areas of any of the springs and/or dimples.

Despite applicants arguments to the contrary, it is not seen wherein Fig. 6 shows both vertical springs and dimples on the inner straps nor does it show a common plane intersecting both the vertical springs and the dimples.

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Note that due to the use of the term "and/or", the drawings must show the relative sizes of a first set of dimples and springs versus a second set of dimples and springs, as well as the relative sizes of a first set of springs versus a second set of springs, as well as the relative sizes of a first set of dimples versus a second set of dimples.

2. The proposed drawing correction to Fig. 6 (filed 5/10/05) has not been approved as it is drawn to new matter.

Original Fig. 6 shows the dimples as being horizontal (in a manner similar to the dimples 88 of Fig. 5).

The new proposed Fig. 6 correction filed 5/10/05 instead, shows the dimples as being vertical and such thus represents new matter.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-5, 7, 9, 10, 14, 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The disclosure and claims refer to a relative difference in size of the fuel element contact area, between the contact area of the “first set of dimples and/or springs” versus, the contact area of the “second set of dimples and/or springs”.

The disclosure, however, fails to describe what this actual fuel element “contact area” is or what it consists of, nor, is it shown in the drawings.

One known type of fuel element contact area consists of a form of point contact wherein the spring and/or dimple has a flat or outwardly curved surface or bridge which contacts the curved fuel element surface, forming a generally “point” contact to minimize or limit contact of the spring and/or dimple with the fuel element surface (as in Wolters, Jr. et al (US 4357298) in Figs. 5A, 5B and col. 5 lines 24+ and, as in DeMario et al (US 4692302).

A known alternative type of fuel element contact area is where the dimples and/or springs have an inwardly curved surface conforming to the curved surface of the fuel element which increases the fuel element surface contact area.

From applicants drawings and specification, it appears that applicants contact area is of the first type, i.e. “point” contact.

There is accordingly, no adequate description nor enabling disclosure of what all is meant by and is encompassed by the references to a difference in fuel element “contact area” between that of the “first set” and that of the “second set”, especially since applicants disclosure is directed only to the presence of a “point contact” area.

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5. Claims 1-5, 7, 9, 10, 14, 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are vague, indefinite and incomplete, particularly as to what all is meant by and is encompassed by the references to a difference in fuel element "contact area" between that of the "first set" and that of the "second set", especially since applicants disclosure is directed only to the presence of a "point contact" area.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 15 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Thomazet et al (US 4804516).

The upper grids 10-16 of Fig. 2 (applicants claimed auxiliary grids) can have the construction shown in Figs. 5, 6 and the lower grids 6-9 of Fig. 2 (applicants claimed main support grids) can have the construction shown in Figs. 7, 8, 9.

The grids in Figs. 5, 6 have double the bosses (and hence, double the contact area) of the bosses on the grids in Figs. 7, 8, 9.

Fig. 2 of the reference clearly shows the upper grids 10-16 as having a shorter axial length than the walls of the lower grids 6-9.

Figs 5 and 6 show the upper grids as being attached to the guide tubes and they show guiding tabs.

Note that it is well settled case law that while patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of the claim. See In re Mraz, 173 USPQ 25 (1972).

9. Claims 1-5, 7, 9, 14, 15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Canat et al (I) (US 5183629).

Note Fig. 1 in which the claimed main support grids read on grids 24 and the auxiliary grids read on grids 26. Col. 5 lines 34+ refers to an embodiment of the main



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support grids 24 wherein the bosses fitted to the grids 24 are not desired to always be in contact with the fuel rod (i.e. they mainly serve to limit bending of the fuel rods).

Applicants claim limitation of the second set of dimples and/or springs on the auxiliary grids having a larger contact area with the fuel rods than that of the main support grids, reads on such.

10. Claims 1-5, 7, 9, 14, 15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Anthony (US 4058436).

Note the drawings, col. 3 lines 20+, col. 4 lines 39+, col. 7 lines 20-34.

The claimed auxiliary grid reads grid 18 (Fig. 1 and Fig. 6) which has a lessor height than that of grid 16 (see Fig. 6 versus Fig. 3).

Fig. 5 shows that there is one support cell for each fuel rod with said one support cell having 4 fuel rods therein. Note that applicants claim language does not restrict each support cell to only a single fuel rod.

Each cell wall of grid 18 as shown in Figs. 5 and 6 thus has four fuel rod contacting areas which is more (and hence larger) than each cell wall of grid 16 as shown in Fig. 3.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony (US 4058436) in view of Leclercq (US 4844861).

Anthony has been discussed above.

Leclercq shows it is old and advantageous in the art to include mixing vanes on the main support grids (e.g. see col. 4 line 66 to col. 5 line 24) and to so modify the primary reference would accordingly have been prima facie obvious.

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12. Any inquiry concerning this communication should be directed to Harvey E. Behrend at telephone number (571) 272-6871. The examiner can normally be reached Tuesday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 571-272-6973. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Behrend/vs  
July 12, 2005



**HARVEY BEHREND  
PRIMARY EXAMINER**